



07789800

CLAIMS in FWC of Serial No. 07/511,951

311/20. A track lighting system comprising:

a source providing a low-frequency AC voltage at a pair of power line terminals; the low-frequency AC voltage having a fundamental period consisting of two half-periods;

a power track having a pair of track conductors as well as a receptacle slot operable to receive and hold track lighting units with socket terminals operative to make electrical contact with the track conductors; and

voltage conditioning means connected between the power line terminals and the track conductors; the voltage conditioning means being operative, but only during a part of each half-period, to provide a high-frequency AC voltage to the track conductors; the fundamental frequency of the high-frequency AC voltage being substantially higher than that of the low-frequency AC voltage; all during said part of each half-period, the instantaneous absolute magnitude of the high-frequency AC voltage being substantially equal to half that of the low-frequency AC voltage;

whereby the RMS magnitude of the high-frequency AC voltage is less than half that of the low-frequency AC voltage.

22x. The track lighting system of claim 20 wherein the voltage conditioning means includes a full-wave rectifier means as well as a half-bridge inverter means.

3 22x. The track lighting system of claim 20 wherein the magnitude of the low-frequency AC voltage is about 277 Volt RMS and the magnitude of the high-frequency AC voltage is about 120 Volt RMS.

4 22x. The track lighting system of claim 20 wherein, during said part of each half-cycle, intermittent periodic ohmic contact is made between one of the power line terminals and one of the track conductors.

5 22x. The track lighting system of claim 20 wherein, during said part of each half-cycle, current may flow directly between one of the power line terminals and one of the track conductors.

6 22x. The track lighting system of claim 20 wherein the waveform of the high-frequency AC voltage is squarewave.

726. A track lighting system comprising:
a source providing a low-frequency AC voltage at a pair of power line terminals;
a power track having a pair of track conductors as well as a receptacle slot operable to receive and hold track lighting units with socket terminals operative to make electrical contact with the track conductors; and
voltage conditioning means connected between the power line terminals and the track conductors; the voltage conditioning means being operative to provide a high-frequency AC voltage to the track conductors; the fundamental frequency of the high-frequency AC voltage being very much higher than that of the low-frequency AC voltage; the high-frequency AC voltage being amplitude-modulated, thereby varying periodically between being of a relatively low magnitude and being of a relatively high magnitude; the relatively high magnitude being several times larger than the relatively low magnitude.

827. The track lighting system of claim 26 wherein the high-frequency AC voltage is a squarewave voltage.

928. The track lighting system of claim 26 wherein, during at least a part of each fundamental period of the low-frequency AC voltage, intermittent periodic ohmic contact is made between one of the power line terminals and one of the track conductors.

1029. The track lighting system of claim 26 wherein, during at least a part of each fundamental period of the low-frequency AC voltage, current flows directly between one of the power line terminals and one of the track conductors.

1130. The track lighting system of claim 26 wherein: (i) a track lighting unit is indeed connected with the track conductors; (ii) the voltage conditioner means includes a full-bridge rectifier connected directly with the power line terminals; and (iii) the voltage conditioner means draws power from the power line terminals with a power factor about equal to or higher than 80%.

1231. The track lighting system of claim 26 wherein the high-frequency AC voltage is 100% amplitude-modulated.

1332. The track lighting system of claim 26 wherein the high-frequency AC voltage is amplitude-modulated at a frequency equal to twice the frequency of the low-frequency AC voltage.

14 32. A track lighting system comprising:
P1 a source providing a low-frequency AC voltage at a pair of power line terminals;

81 a power track having a pair of track conductors as well as a receptacle slot operable to receive and hold track lighting units with socket terminals operative to make electrical contact with the track conductors; and

Cont'd
P1 voltage conditioning means connected between the power line terminals and the track conductors; the voltage conditioning means including a full-bridge rectifier and an inverter means; the full-bridge rectifier being connected directly with the power line terminals and being operative to supply rectified unfiltered low-frequency AC voltage to the inverter means; the voltage conditioning means being operative:

B 11 (i) to provide ^{an amplitude modulated} high-frequency AC voltage to the track conductors; the fundamental frequency of the high-frequency AC voltage being very much higher than that of the low-frequency AC voltage;

121 (ii) to power track lighting units connected with the track conductors; and

P1 (iii) to draw power from the power line terminals with a power factor of at least 80%.

13 34. The track lighting system of claim 33 wherein the inverter means includes a half-bridge inverter. 14

14 35. The track lighting system of claim 33 wherein the high-frequency AC voltage is a squarewave voltage. 14

17 36. A track lighting system comprising:
P1 a source providing a low-frequency AC voltage at a pair of power line terminals;

P1 a power track having a pair of track conductors as well as a receptacle slot operable to receive and hold track lighting units with socket terminals operative to make electrical contact with the track conductors; and

P1 voltage conditioning means connected between the power line terminals and the track conductors; the voltage conditioning means being operative to provide ^{an amplitude modulated} high-frequency squarewave voltage to the track conductors; the fundamental frequency of the high-frequency squarewave voltage being substantially higher than that of the low-frequency AC voltage. B

37. The track lighting system of claim 36 wherein the high-frequency squarewave voltage is amplitude-modulated.